

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-163
Relating to Certification of New Off-Road Compression-Ignition Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board (Board) by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and exhaust emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Loader and Other Industrial Equipment

Fuel Type: Diesel

<u>Engine Family</u>	<u>Engine Displacement (liters)</u>	<u>Useful Life (hours)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
1CPXL07.0MRA	7.0	8000	Direct Diesel Injection Turbocharger Smoke Puff Limiter

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values for total hydrocarbons (THC), carbon monoxide (CO), oxides of nitrogen (NOx), and particulate matter (PM) (units are expressed in grams per kilowatt-hour (g/kw-hr)), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423, as amended by Board approval on January 28, 2000):

Engine Power Rating (kw)	Emission Standard Category		<u>Exhaust Emissions</u> (g/kw-hr)				<u>Smoke Opacity</u> (%)		
			<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
75≤KW<130	Tier 1	Standard	N/A	N/A	9.2	N/A	20	15	50
		Certification	--	--	6.6	--	7	6	10

BE IT FURTHER RESOLVED: That the listed engine models with rated power equal to or greater than 19 KW but less than 130 KW are **conditionally certified** to, and shall be required to comply with, all amendments to Title 13, California Code of Regulations, Sections 2420 through 2427 adopted by the Board on January 28, 2000 at its hearing "TO CONSIDER AMENDMENTS TO OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS: 2000 AND LATER EMISSION STANDARDS, COMPLIANCE REQUIREMENTS AND TEST PROCEDURES." The listed engine models comply with all such amendments, including, but not limited to:


- the amended "Emission Control Labels—1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year;
- the Board's amended emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426) for the listed engine models, as demonstrated by materials submitted by the manufacturer; and
- new California requirements for the Selective Enforcement Audit (SEA) for the listed engine models, as demonstrated by the manufacturer's submission of materials.

BE IT FURTHER RESOLVED: That the conditional certification described in the paragraph above is conditioned on the amendments being approved by the California Office of Administrative Law (OAL) pursuant to Government Code Section 11349.3, and where necessary, authorized by the Administrator of the U.S. Environmental Protection Agency (U.S. EPA) pursuant to Section 209(e)(2) of the Federal Clean Air Act. In the event that the OAL disapproves the amendments or the U.S. EPA decides not to authorize them, the conditional certification herein of the listed engine models with rated power equal to or greater than 19 KW but less than 130 KW shall be deemed null and void.

The conditional certification described herein is not conditioned on further U.S. EPA action on amendments determined by the Board to be within the scope of an existing U.S. EPA authorization.

Engines certified under this Executive Order must conform to the above requirements under Title 13, California Code of Regulations, Chapter 9, Article 4, and all other applicable California emission laws and regulations.

Executed at El Monte, California this 21st day of December 2000.



R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **1CPXL07.0MRA**
 Mfr Family Name: **N/A**
 Process Code: **New Submission**

U-R-1163

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
Note: Peak Hp	and Peak torque	fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change.	
1 - Cert Engine	3304	166 @ 1800	152	61.4	586 @ 1200	198	53.3	EM, DI, TC, SPL
2	3304	159 @ 2200	129	63.6	511 @ 1400	161	50.5	EM, DI, TC, SPL
3	3304	136 @ 2200	111	54.9	432 @ 1400	137	42.9	EM, DI, TC, SPL
4	3304	150 @ 2200	122	60.0	482 @ 1400	153	48.0	EM, DI, TC, SPL
5	3304	160 @ 2000	136	61.0	517 @ 1400	162	51.0	EM, DI, TC, SPL
6	3304	145 @ 2000	123	55.0	472 @ 1400	147	46.0	EM, DI, TC, SPL
7	3304	140 @ 2000	118	53.0	455 @ 1400	143	45.0	EM, DI, TC, SPL
8	3304	165 @ 1800	151	61.0	596 @ 1400	169	53.0	EM, DI, TC, SPL